

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

DAVILA BAZ, Angel
C/o Clarke, Modet & Co.
Goya 11
E-28001 Madrid
ESPAGNE

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
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PXWO00312/03

IMPORTANT NOTIFICATION

International application No.
PCT/ES 03/00446

International filing date (day/month/year)
03.09.2003

Priority date (day/month/year)
04.09.2002

Applicant
VODAFONE GROUP PLC et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international preliminary examining authority:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Davis, M

Tel. +49 89 2399-2703



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

Applicant's or agent's file reference PXWO0031203	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/ES 03/00446	International filing date (<i>day/month/year</i>) 03.09.2003	Priority date (<i>day/month/year</i>) 04.09.2002
International Patent Classification (IPC) or both national classification and IPC H04M3/487		
Applicant VODAFONE GROUP PLC et al		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of 7 sheets, including this cover sheet. <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of 5 sheets.
3.	This report contains indications relating to the following items: <div style="margin-left: 20px;"> I <input checked="" type="checkbox"/> Basis of the opinion II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application </div>

Date of submission of the demand 31.03.2004	Date of completion of this report 01.12.2004
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized Officer Gavin Alarcon, O Telephone No. +49 89 2399-7012

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/ES 03/00446**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-25 as originally filed

Claims, Numbers

1-24 received on 11.08.2004 with letter of 10.08.2004

Drawings, Sheets

1/7-7/7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/ES 03/00446

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-24
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-24
Industrial applicability (IA)	Yes: Claims	1-24
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reference is made to the following documents:

D1: US-B-6 310 9481

D2: WO 01 22752 A1

D3: WO 99 37080 A1

INDEPENDENT CLAIM 1

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.
- 1.1 The document **D3** is regarded as being the closest prior art to the subject-matter of claim 1 and discloses (the references in parentheses applying to this document):

A dialling error notification system ("DISC 130" plus "GIRAFF 220" plus "fax/voice messaging facility", see also page 5, lines 8-26) for subscribers ("terminal 100"), in a second telephony network ("PSTN"), said subscribers belonging to a first telephony network ("private network") which is different from the second telephony network (page 9, lines 20-29, "groups of users who are prone to making particular dialling errors", "individual users or users from a particular region or users from a private network", page 12, lines 20-29 and page 17, line 33 to page 18, line 4, "private network").

The system of D3 comprises:

a) a first node (page 8, line 10 to page 9, line 14, "call monitoring facility 200" plus "GIRAFF 220", see also Figs. 2-3) of the second telephony network (page 5, lines 8-26, "PSTN") comprising means ("message selector 310", see also Fig. 3) for analysing a number ("the dialled number") dialled by a subscriber ("terminal 100") and determining whether said dialled number complies at least one determined error criterion ("the message selector 310 is required to further analyse the misdialled number of the call", "GIRAFF 220 analyses the dialling error separately to the call monitoring facility 200 in the DISC 130", see also page 5, lines 27-30, "call monitoring apparatus 200 monitors the destination of each call to determine whether a valid destination has been specified or whether a dialling error has occurred"); and

b) means (page 6, line 27 to page 7, line 4, "call set-up facility 325" together with "fax transmission facility 330, fax download 330" or alternatively, page 10, lines 11-19, "voice download facility 355" together with "voice messaging facility 315", see Fig. 3 and also page 5, line 31 to page 6, line 2, "fax messaging facility", "normal recorded announcement voice messaging facility") for sending a message ("fax message" or alternatively "voice message") with a dialling error notification ("messaging advising them that they have misdialed" and page 10, line 33 to page 11, line 3, "error messages", page 5, line 31 to page 6, line 2, "to inform customers that a dialling error has occurred") to the subscriber ("terminal 100") if said dialled number complies with at least one determined error criterion; and

c) means (page 6, lines 6-12, "CLI capture facility 350", "analysis tool") for determining the identity of the first telephony network to which the subscriber belongs (page 9, lines 20-29, "to identify groups of users who are prone to making particular dialling errors", "individual users or users from a particular region or users from a private network") based on the identity of the subscriber (page 9, lines 20-29, "the CLI of the terminal originating the call").

- 1.2 The system as claimed in claim 1 differs from the one described in D3 in that:
- i) the second telephony network is specifically a visited mobile telephony network instead of a Public Switched Telephone Network (PSTN); and
 - ii) the first telephony network is specifically a home mobile telephony network instead of a private network; and
 - iii) the subscriber identity is specifically the International Mobile Subscriber Identity (IMSI) instead of the Calling Line Identity (CLI); and
 - iv) the message is specifically a short message instead of a fax/voice message.
- 1.3 In view of differences i), ii), iii) and iv), the problem to be solved by the system defined in claim 1 is how to notify a mobile user about a dialling error when said user is using a mobile network which is different from his home mobile network.
- 1.4 The same problem but in the field of fixed networks is addressed in document D3 (see for example abstract), which discloses how to notify a phone/fax user about a dialling error when said user is using a network (PSTN) which is different from his private network. To solve this problem, D3 discloses a solution (see paragraphs 1.1 to 1.3 of this examination report) which is equivalent to the one defined in claim 1 but in the field of fixed networks.

- 1.5 Consequently, the person skilled in the art trying to solve the problem stated in paragraph 1.4 and starting from D3 would just use common knowledge of mobile networks ("IMSI" instead of "CLI", "short message" instead of "fax/voice message") to implement the teachings of D3 in a mobile network, reaching this way the subject-matter of claim 1.

Therefore, the solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT).

INDEPENDENT CLAIM 11

2. The same objection and reasoning as in claim 1 applies to the subject-matter of the corresponding method claim 11, which therefore is also considered not inventive over the disclosure of D3.

DEPENDENT CLAIMS 4 and 17

3. The additional feature included in claim 4 is already disclosed in D3, see page 9, lines 20-29, page 12, lines 20-29 and page 15, lines 20-31 ("tailored messages", "select a message appropriate for that area", "specific messages can be targeted to users within these groups by checking [...] the CLI originating the call and selecting the error message appropriate for that particular CLI"). Therefore, claim 4 does not involve an inventive step (Article 33(3) PCT). The same objection applies to the corresponding method claim 17.

DEPENDENT CLAIM 13

4. The additional feature included in claim 13 cannot be considered inventive, since the fact of checking whether a subscriber is entitled to receive a service prior to offering the service is a common procedure in telecommunications networks (see also D3, page 11, lines 18-24, "customer profiles"). Therefore, claim 13 does not involve an inventive step (Article 33(3) PCT)

DEPENDENT CLAIMS 2-3, 5-10, 12, 14-16, 18-24

5. The dependent claims 2-3, 5-10, 12, 14-16, 18-24 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step. The reasons are as follows:
- 5.1 The subject-matter of claims 2, 7-8, 12 and 20-21 cannot be considered as inventive over the disclosure of D3, page 10, lines 27-30 and page 8, lines 10-30 ("C7 signalling", "GIRAFF may be remotely located from the DISC 130", "transfer

the incoming call 300 from the DISC 130 to the GIRAFF 220"). In claims 14 and 15, the order in which the steps are performed does not involve any inventive skill.

- 5.2 The features included in claims 3, 5-6, 16 and 18-19 are just constructional details on the transmission of a network-generated short message and cannot be considered as inventive over the disclosure of D3, page 6, line 33 to page 7, line 4 ("the message selector 310 selects a message from a message database 335 and downloads it to a fax transmission facility 330") together with page 10, lines 30-33 ("the fax transmission equipment may be [...] remote from [...] the GIRAFF 220", "the C7 protocol above is one means of achieving this").
- 5.3 The features included in claims 9 and 22 are disclosed in D3, see page 7, line 32 to page 8, line 2, page 11, lines 4-13 and page 13, line 23 to page 14, line 32. Additionally, the features of claims 10 and 23 can be seen as constructional details of the misdialling detection method which do not add anything inventive to the system of D3. The feature of claim 24 is a constructional detail of CAMEL networks.

Additional remarks.

6. The application does not meet the requirements of Article 6 PCT, because claims 1 and 11 are not clear. The reasons therefor are as follows:
- 6.1 It is clear from the description on page 21, line 12 to page 23, line 18 that the additional features included in claims 4 and 13 are essential to the definition of the invention, since the determination of the identity of the home mobile network based on the IMSI must be used somehow. Since independent claim 1 does not contain these features it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention. The same objection applies to the corresponding method claim 11.
- 6.2 Additionally, the fact that step c) in claim 11 is performed after step b) is not supported by the description, rendering the claim unclear.
- 6.3 Figure 10 is missing from the drawings and Figure 8 has been duplicated, rendering the description unclear.

CLAIMS

1. A dialling error notification system for visiting subscribers in a visited mobile telephony network (VPLMN) (100), a visiting subscriber being a subscriber from a home mobile telephony network (HPLMN) (200) different from the visited mobile telephony network (100), characterised in that it comprises:
- 5 a first node (11) of the visited mobile telephony network (100) comprising means for analysing a number dialled by a subscriber (201) and determining whether said dialled number complies with at least one predetermined error criterion; and
- means for sending a short message (SM) with a dialling error notification to the
- 10 subscriber if said dialled number complies with at least one predetermined error criterion.
- 2.- A system according to claim 1, characterised in that said first node is a Service Control Point (SCP) (11) of the visited mobile telephony network (100).
- 3.- A system according to any of the previous claims, characterised in that it
- 15 comprises means for determining the identity of the home mobile telephony network (HPLMN) based on the IMSI of the subscriber.
- 4.- A system according to any of the previous claims, characterised in that it comprises:
- means for sending a message (M1) to send a short message to an SS7-IP
- 20 gateway (16) from the first node (11) of the visited mobile telephony network (100);
- means for sending an http message to send a short message to a short message sending server (18) from said SS7-IP gateway (16);
- means for sending a short message addressed to the subscriber (201) to a Short Message Service Centre (SMSC) (10) of the visited network (100) from said
- 25 short message sending server (18).
- 5.- A system according to any of the previous claims, characterised in that it comprises means for selecting the short message text based on the identity of the home mobile telephony network (HPLMN).
- 6.- A system according to claim 5, characterised in that it comprises means for
- 30 selecting the short message text based on the IMSI of the visiting subscriber.
- 7.- A system according to claim 4, characterised in that the short message sending server (18) includes a database with short message texts and means for selecting a short message text based on an indicator code included in the http message received from the SS7-IP gateway (16).
- 35 8.- A system according to claim 4, characterised in that the http message

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ART 34 AMDT

includes at least one indicator code of a short message text and the mobile telephone number (MSISDN) of the subscriber (201) to whom the short message must be sent.

5 9.- A system according to any of the previous claims, characterised in that it comprises means for sending an initial control set-up message to a first node (11), comprising at least the following data: the telephone number dialled by the subscriber; the mobile telephone number (MSISDN) of the subscriber; and the IMSI of the subscriber.

10 10.- A system according to claim 9, characterised in that the means for sending an initial control set-up message to the first node (11) are comprised in the MSCs (5, 6) of the visited mobile telephony network (VPLMN), such that when a subscriber in a cell (2) corresponding to an MSC (5) dials a telephone number, said MSC sends the initial control set-up message to the first node (11).

15 11.- A system according to any of the previous claims, characterised in that it comprises control means for preventing a second short message with a dialling error notification from being sent to a subscriber if the time elapsed since a first short message with a dialling error notification was sent to said subscriber is less than a predetermined minimum time.

20 12.- A system according to any of the previous claims, characterised in that the error criteria include one or several criteria selected from the group comprising the following criteria:

- the number dialled begins with "+" followed by a sign different from a figure C, $1 \leq C \leq 9$;
- the number dialled begins with "00" followed by a sign different from a figure C, $1 \leq C \leq 9$;
- 25 - the number dialled is a 9-figure number beginning with a figure which is not 6, 7, 8 or 9;
- the number dialled begins with "+" or "00" followed by a country code followed by an escape code not applicable for international dialling to said country; and
- the number dialled is a number with fewer than 9 figures which is not a short
30 code.

13. A dialling error notification method for visiting subscribers in a visited mobile telephony network (VPLMN) (100), a visiting subscriber being a subscriber from a home mobile telephony network (HPLMN) (200) different from the visited mobile telephony network (100), characterised in that it comprises the steps of:
35 (a) analysing in a first node (11) of the visited mobile telephony network (100) a

number dialled by the subscriber and determining whether said number dialled complies with at least one predetermined error criterion;

(b) sending at least one short message (SM) to the subscriber if said dialled number complies with at least one predetermined error criterion, said short message comprising at least one dialling error notification.

14.- A method according to claim 13, characterised in that the first node is a Service Control Point (SCP) (11) of the visited mobile telephony network (100).

15.- A method according to any of claims 13 and 14, characterised in that

(c) the identity of the home mobile telephony network (HPLMN) of the subscriber is determined and based on the home mobile telephony network (HPLMN) of the subscriber, it is determined whether the subscriber has the right to a dialling error notification service.

16.- A method according to claim 15, characterised in that the identity of the home mobile telephony network is determined based on the IMSI of the subscriber.

17.- A method according to any of claims 15 and 16, characterised in that step (c) is carried out before step (b).

18.- A method according to claim 17, characterised in that step (c) is carried out before step (a).

19. A method according to any of claims 13 to 18, characterised in that step (b) comprises:

- sending a message (M1) to send a short message to an SS7-IP gateway (16) from a Service Control Point (SCP) (11);

- sending an http message to send a short message to a short message sending server (18) from said SS7-IP gateway;

- sending a short message addressed to the visiting subscriber (201) to a Short Message Service Centre (SMSC) (10) of the visited network (100) from said server (18).

20.- A method according to any of claims 13 to 19, characterised in that the short message text is selected based on the identity of the home mobile telephony network (HPLMN).

21.- A method according to claim 20, characterised in that the short message text is selected based on the IMSI of the visiting subscriber.

22.- A method according to claim 19, characterised in that the text is selected from a plurality of texts comprised in a database of the short message sending server (18) based on an indicator code included in the http message received from the SS7-IP

gateway (16).

23.- A method according to claim 19, characterised in that the http message includes at least one indicator code indicating a short message text and the mobile telephone number (MSISDN) of the subscriber (201) to whom the short message must be sent.

24.- A method according to any of claims 13 to 23, characterised in that it comprises a first step comprising sending an initial control set-up message to the first node (11), comprising at least the following data: the telephone number dialled by the subscriber; the mobile telephone number (MSISDN) of the subscriber; and the IMSI of the subscriber.

25.- A method according to claim 24, characterised in that the initial control set-up message is sent from an MSC (5) of the visited mobile telephony network (100) corresponding to the cell (2) in which the subscriber is located.

26.- A method according to any of claims 13 to 25, characterised in that before sending a short message with a dialling error notification to the subscriber, it is checked that a predetermined minimum time has elapsed since a previous short message with a dialling error notification was sent to the same subscriber, and if said predetermined minimum time has not elapsed, the short message with a dialling error notification is not sent.

27.- A method according to any of claims 13 to 26, characterised in that the error criteria include one or several criteria selected from the group comprising the following criteria:

- the number dialled begins with "+" followed by a sign different from a figure C, $1 \leq C \leq 9$;
- the number dialled begins with "00" followed by a sign different from a figure C, $1 \leq C \leq 9$;
- the number dialled is a 9-figure number beginning with a figure which is not 6, 7, 8 or 9;
- the number dialled begins with "+" or "00" followed by a country code followed by an escape code not applicable for international dialling to said country; and
- the number dialled is a number with fewer than 9 figures which is not a short code.

28.- A method according to any of claims 13 to 27, characterised in that it is only carried out for visiting subscribers who are not provided with CAMEL service O-CSI flag.